

Claims

1. A system for facilitating trading two items from the group of items comprising commodities and financial instruments, said system comprising:

at least two agents that want to trade the items;

a trading channel between the two agents allowing

for the execution of trades;

flow limits on the traded items and on any

underlying instruments to be exchanged upon settlement of the
traded items; and

a central computer coupled to the two agents, said computer adapted to convey to each agent current tradable bid and offered prices and sizes subject to the agent's flow limits.

2. The system of claim 1 wherein both agents are coupled to the central computer when they are trading.

3. The system of claim 1 wherein at least one agent is a credit-extending agent.

4. The system of claim 1 wherein there are at least two credit-extending agents having trading channels with a single non-credit-extending agent.

5. The system of claim 1 wherein there are at least two non-credit-extending agents having trading channels with a single credit-extending agent, wherein said credit-extending agent has instructed the central computer that it is

1 permissible to have two non-credit-extending agents perform
2 trades via said credit-extending agent.
3

4 6. The system of claim 5 wherein the two non-credit-
5 extending agents do not have an available trading channel
6 between them, and the credit-extending agent yields some of
7 its trading channel capacity to the two non-credit-extending
8 agents.

9 7. The system of claim 1 wherein there are at least two
10 credit-extending agents having trading channels with a single
11 non-credit-extending agent; and

12 there are at least two non credit-extending agents
13 having trading channels with the same credit-
14 extending agent, which credit-extending agent has
15 instructed the central computer that it is
16 permissible to have two non-credit-extending
17 agents perform trades via said credit-extending
18 agent.
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20 8. The system of claim 1 wherein the central computer
21 updates the current tradable information after each trade.
22

23 9. A system for facilitating the trading of items from
24 the group of items comprising commodities and financial
25 instruments, said system comprising:

26 a plurality of agents that wish to trade the items,
27 wherein each agent is coupled to at least one
28 other agent via a trading channel; and

1 a central computer that conveys to each agent
2 current tradable bid and offered prices and sizes
3 subject to the agent's trading and flow limits;

4 wherein

5 there is at least one non-credit-extending agent
6 having trading channels with at least two credit-
7 extending agents; and

8 there is at least one commonly-coupled credit-
9 extending agent having trading channels with at
10 least two non-credit-extending agents, wherein
11 said commonly-coupled credit-extending agent has
12 instructed the central computer that it is
13 permissible to have at least two non-credit-
14 extending agents perform trades via said commonly-
15 coupled credit-extending agent.

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17 10. The system of claim 1 further comprising a second
18 computer coupled to the central computer, adapted to affix
19 date and time stamps on trade orders posted by the agents.

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21 11. The system of claim 1 wherein at least one agent
22 comprises a computer having a standard application programming
23 interface (API), wherein the API is coupled to the central
24 computer and enables the agent to write customized
25 instructions to facilitate two-way communication between the
26 agent and the central computer.

1 12. The system of claim 11 wherein the agent is a
2 credit-extending agent and the API enables the agent to update
3 the agent's backoffice information.
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5 13. The system of claim 11 wherein the API is programmed
6 to make and cancel orders.
7

8 14. The system of claim 11 wherein the API receives and
9 reformats the agent's current tradable bid and asked
information for any traded items.
10

11 15. The system of claim 11 wherein the API sets trading
limits.
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13 16. The system of claim 11 wherein the API estimates how
14 much it would cost the agent to liquidate the agent's position
in a traded item.
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16 17. The system of claim 11 wherein the API is programmed
17 to estimate the agent's current profit/loss amount for each
item being traded.
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19 18. The system of claim 11 wherein the API is programmed
20 to automatically execute trades.
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22 19. A trading system comprising a non-disjointed network
23 of j credit-extending agents and k non-credit-extending
agents, where j and k are each positive integers at least
24 equal to two; wherein
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the agents are connected via trading channels; and
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the agents are adapted to trade items from the group
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of items comprising commodities and financial
28 instruments; said system further comprising:
—

1 a central computer coupled to the agents, said
2 computer being adapted to calculate, for each pair
3 of items being traded, topology-dependent
4 individual trading limits for each agent.
5

6 20. A non-disjointed network comprising:

7 j credit-extending agents and k non-credit-extending
8 agents, where j and k are each positive integers
9 at least equal to two;

10 a plurality of trading channels coupling the agents
11 to each other, wherein the trading channels permit
12 the agents to trade items from the group of items
13 comprising commodities and financial instruments;

14 and

15 a central computer which, for each pair of items
16 being traded, converts the network into a
17 virtually cliqued network.

18 21. The system of claim 19 wherein, after each trade,
19 the central computer re-computes the trading limits, thereby
20 changing the topology of the network.

21 22. The system of claim 21 wherein changing the trading
22 limits for a given pair of items forces a change in the
23 trading limits for at least one other pair of items.

24 23. The system of claim 19 wherein the central computer
25 presents a standardized application programming interface
26 enabling any agent to connect thereto.

1
2 24. The system of claim 19 wherein each agent comprises
3 means for displaying:

4 said agent's current position in each item traded;

5 and

6 said agent's currently available trading limits, for
7 all item pairs, with its immediate neighboring
8 agents.

9 25. The system of claim 19 wherein the central computer
10 prepares, for each agent, a custom limit order book taking
11 into account multi-hop trading limits.

12 26. The system of claim 19 wherein the central computer
13 removes trading channels in instances where a credit-extending
14 agent has not authorized acting as an intermediary for back-
15 to-back trades.

16 27. The system of claim 19 wherein the trading limits
17 are derived from at least one specified input credit limit
18 from the group of specified input credit limits comprising
19 position limits for lot items, position limits for quoted
20 items, volume limits for lot items, volume limits for quoted
21 items, notional position limits, notional volume limits, item
22 pair position limits, and item pair volume limits.

24 28. The system of claim 27 wherein the central computer
25 converts the specified input credit limits into trading limits
26 for each pair of items being traded, and places said trading
27 limits into custom limit order books for each agent, said
28 custom limit order books taking into account multi-hop trades.

1 29. The system of claim 19 wherein the trading limits
2 take into account an input lot item position credit limit
3 specified by a credit-extending agent.
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5 30. The system of claim 19 wherein the trading limits
6 take into account an input quoted item position credit limit
7 specified by a credit-extending agent.

8 31. The system of claim 19 wherein the trading limits
9 take into account an input volume credit limit for a lot item
10 specified by a credit-extending agent.

11 32. The system of claim 19 wherein the trading limits
12 take into account an input volume credit limit for a quoted
13 item specified by a credit-extending agent.

14 33. The system of claim 19 wherein the trading limits
15 take into account an input notional position credit limit
16 specified by a credit-extending agent.

17 34. The system of claim 19 wherein the trading limits
18 take into account an input notional volume credit limit
19 specified by a credit-extending agent.

20 35. The system of claim 19 wherein the trading limits
21 take into account an input traded item position credit limit
22 specified by a credit-extending agent.

23 36. The system of claim 19 wherein the trading limits
24 take into account an input traded item volume credit limit
25 specified by a credit-extending agent.

26 37. The system of claim 19 wherein, after each trade
27 between a buying agent and a selling agent, the central
28

1 computer issues a deal ticket to an auditor, an in flow ticket
2 to the buying agent, and an out flow ticket to the selling
3 agent.

4 38. The system of claim 37 wherein:

5 the trade is a multi-hop trade;

6 there is at least one intermediate agent situated in
7 the flow between the buying agent and the selling
8 agent;

9 the buying agent and the selling agent are unknown
10 to each other;

11 the deal ticket contains the identity of each
12 intermediate agent;

13 the in flow ticket contains the identity of just an
14 immediate neighboring agent; and

15 the out flow ticket contains the identity of just an
16 immediate neighboring agent.

17 39. The system of claim 37 wherein each ticket is
18 digitally signed by the central computer.

19 40. The system of claim 37 wherein each ticket is
20 encrypted by the central computer.

21 41. The system of claim 40 wherein the in flow ticket is
22 encrypted to the buying agent and to the auditor, but not to
23 the central computer.

24 42. The system of claim 40 wherein the out flow ticket
25 is encrypted to the selling agent and to the auditor, but not
26 to the central computer.

1 43. A method for an agent to trade with a counterparty
2 an item from the group of items comprising commodities and
3 financial instruments, said method comprising:

4 receiving from a central computer a custom limit
5 order book which takes into account multi-hop
6 trading limits with other agents coupled to the
7 central computer; and

8 communicating an order to the central computer based
9 upon information contained in the custom limit
10 order book.

11 44. A computer adapted to facilitate trading among a
12 plurality of agents items from the group of items comprising
13 commodities and financial instruments, said computer
14 comprising:

15 means for converting specified input credit limits
16 into a set of trading limits;

17 coupled to the converting means, means for
18 postulating the trading limits as a set of multi-
19 hop trading limits; and

20 coupled to the postulating means, means for
21 communicating the multi-hop trading limits to the
22 agents in the form of a custom limit order book
23 for each agent, taking into account all of the
24 specified input credit limits.

25 45. The computer of claim 44 wherein the postulating
26 means comprises means for applying a maximum flow algorithm.

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2 46. A computer readable medium comprising computer
3 program instructions for enabling an agent to trade items from
4 the group of items comprising commodities and financial
5 instruments, said computer program instructions enabling said
6 agent to perform the steps of:

7 receiving from a central computer a custom limit
8 order book which takes into account multi-hop
9 trading limits with other agents coupled to the
10 central computer; and
11 communicating an order to the central computer based
12 upon information contained in the custom limit
13 order book.

14 47. A method by which a computer facilitates trading,
15 among a plurality of agents, items from the group of items
16 comprising commodities and financial instruments, said
17 computer performing the steps of:

18 converting specified input credit limits into a set
19 of computerized trading limits;
20 graphing a network comprising nodes representing
21 agents, said nodes being connected by paths
22 representing the trading limits;
23 deriving from the graph a set of multi-hop trading
24 limits between each pair of agents; and
25 communicating the multi-hop trading limits to the
26 agents in the form of a custom limit order book

for each agent, said custom limit order book taking into account the topology of the network.

48. The method of claim 47 wherein the deriving step comprises applying a maximum flow algorithm.

49. A first agent computer adapted to trade with other agent computers items from the group of items comprising commodities and financial instruments, said first agent computer comprising:

a display; and

displayed on the display, a custom limit order book showing, for each pair of items to be traded, multi-hop trading limits between said first agent computer and each of said other agent computers.

50. The first agent computer of claim 49, further comprising an application programming interface.

51. The first agent computer of claim 49 wherein the multi-hop trading limits take into account specified input credit limits.

52. The first agent computer of claim 51 wherein the specified input credit limits comprise at least one limit from the group of limits comprising position limits for lot items, position limits for quoted items, volume limits for lot items, volume limits for quoted items, notional position limits, notional volume limits, traded item position limits, and traded item volume limits.

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2 53. A method by which a first agent trades with other
3 agents items from the group of items comprising commodities
4 and financial instruments, said method comprising said first
5 agent performing the steps of:

6 viewing a custom limit order book showing, for each
7 pair of items to be traded, multi-hop trading
8 limits between said first agent and each of said
9 other agents; and
10 executing a maneuver from the set of maneuvers
11 comprising placing an order to be considered by
12 said other agents and taking an order placed by
13 one of said other agents.

14 54. The method of claim 53 wherein the step of executing
15 a maneuver comprises taking less than an entire order.

16 55. A computer readable medium comprising computer
17 program instructions for enabling a central computer to
18 facilitate trading, among a plurality of agents, items from
19 the group of items comprising commodities and financial
20 instruments, said computer program instructions enabling said
21 central computer to perform the steps of:

22 converting specified input credit limits into a set
23 of computerized trading limits;
24 graphing a network comprising nodes representing
25 agents, said nodes being connected by paths
26 representing the trading limits;

1 deriving from the graph a set of multi-hop trading
2 limits between each pair of agents; and
3 communicating the multi-hop trading limits to the
4 agents in the form of a custom limit order book
5 for each agent, said custom limit order book
6 taking into account the topology of the network.

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